National Nuclear Security Administration

Defense Nuclear Nonproliferation

Global Initiatives for a More Secure Future

www.nnsa.doc.gov/na-20

Our Vision

The National Nuclear Security Administration (NNSA) envisions a future where weapons of mass destruction (WMD) do not pose a threat to the United States or its allies -- where the United States collaborates with its international partners to strengthen the nonproliferation regime in a cooperative effort to prevent a catastrophic nuclear event from occurring.

Our Mission

The mission of the NNSA's Office of Defense Nuclear Nonproliferation (DNN) is to detect, prevent, and reverse the proliferation of weapons of mass destruction.

To implement its mission, DNN:

SECURES AND ACCOUNTS FOR nuclear weapons, nuclear and radiological equipment and materials by implementing security upgrades and consolidating materials at secure facilities worldwide.

DETECTS nuclear proliferation and illicit nuclear and radiological trafficking by conducting cutting-edge research and development and installing radiation detection equipment at key border crossings, including air and sea ports.

REMOVES, REDUCES AND ELIMINATES nuclear materials by shutting down plutonium production reactors in Russia and by repatriating dangerous nuclear and radiological materials to Russia or the United States for final disposition.

STRENGTHENS INTERNATIONAL NONPROLIFERATION REGIME by providing unique policy and technical input to support U.S. nonproliferation initiatives, treaties and agreements, bolstering international safeguards, export controls, and regional security cooperation.

REDIRECTS NUCLEAR EXPERTISE by downsizing the nuclear weapons infrastructure of the former Soviet Union, Libya and Iraq and redirecting former weapons scientists to peaceful, civilian work.

Secures and Accounts for Materials and Equipment

DNN, in cooperation with the Russian Federation, upgrades security at Russia's Federal Atomic Energy Agency (Rosatom) weapons complex, and at nuclear sites that store and process approximately 500 metric tons of weapons-usable material in Russia. DNN also secures nuclear weapons at Russian Navy and Strategic Rocket Forces sites and consolidates excess weapons-usable material into fewer, more secure locations.

Security upgrades at a nuclear facility in the former Soviet Union.

DNN promotes infrastructure development and sustainability of security upgrades in partner countries by improving transportation security, training and equipment for protective forces and developing national regulations, inspection, and maintenance infrastructure. DNN also assists foreign governments in the implementation of their international safeguards agreements to strengthen the physical protection of their nuclear materials.

Packed drums [in Iraq] being put back into storage.

DNN identifies, recovers, consolidates and secures high-risk domestic and foreign radioactive sealed sources. These materials are often poorly secured and could be subject to theft or sabotage.

An emergency recovery operation on an insufficiently protected radioactive source in the United States.

Offices that conduct this work:

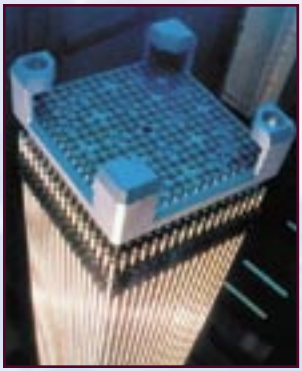
- NA-21: Office of Global Threat Reduction
- NA-24: Office of Nonproliferation and International Security
- NA-25: Office of International Material Protection & Cooperation

Removes, Reduces and Eliminates Nuclear Materials

DNN facilitates the removal and final disposition of vulnerable, high-risk nuclear and radiological materials by accelerating existing threat reduction programs and addressing gaps that may not be covered by existing programs.

Two of three plutonium production reactors in Russia that will be permanently shut down.

DNN repatriates U.S. and Russian-origin HEU fuel located in facilities around the world to the United States and Russia. In order to participate in the fuel repatriation programs, countries must agree to convert their research reactors from high enriched uranium (HEU) to low enriched uranium (LEU) fuel upon availability, qualification, and licensing of suitable LEU fuel. DNN is also working to develop the LEU fuels that will allow reactors around the world to be converted.



Mixed oxide fuel assembly — a means for eliminating surplus plutonium.

DNN's Highly Enriched Uranium Transparency Implementation Program (HEU-TIP) monitors the elimination of 500 metric tons of Russian HEU. The program provides confidence that LEU sold to the United States as fuel for civilian nuclear power plants is downblended HEU from Russian nuclear weapons. DNN also oversees the downblending of surplus HEU from the U.S. inventory for peaceful use as commercial nuclear reactor fuel.

In addition, the United States and Russia will each dispose of 34 metric tons of surplus weapon-grade plutonium, enough for thousands of nuclear weapons, by irradiating it as mixed oxide fuel (MOX) in nuclear reactors. The U.S. is also enabling the Russian Federation to shut down permanently its three remaining plutonium-production reactors by constructing and refurbishing replacement fossil-fuel plants.

Yellowcake Uranium. Under DNN programs, HEU is down-blended with other forms of uranium to produce LEU for peaceful commercial purposes.

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- NA-23: Office of Nuclear Risk Reduction
- NA-24: Office of Nonproliferation and International Security
- NA-26: Office of Fissile Materials Disposition

Detects Nuclear Proliferation

DNN works to halt nuclear smuggling and nuclear terrorism by deploying radiological and nuclear detection equipment at key border crossings, airports, and major seaports, or "Megaports" worldwide. For example, DNN has installed radiation detection equipment at more than 39 sites in Russia to deter and interdict the illicit trafficking of nuclear and radiological materials. And, in cooperation with the Department of State, DNN also provides preventive maintenance and repair to radiation detection equipment in more than 22 countries.

DNN also provides ground-based, air-based and space-based solutions to identify, locate and track WMD materials, processes and facilities. Collaborating with National Laboratories, universities and commercial partners, DNN develops technologies and demonstrates prototypes to improve the United States' ability to detect and deter WMD proliferation, detect and monitor nuclear explosions, and strengthen strategic arms control treaties and agreements.

Vehicle portal monitors detect the illegal transport of nuclear and radioactive materials.

DNN provides operational support for space-based and ground-based nuclear explosion monitoring systems.

DNN breakthroughs in hand-held radiation detection and nuclear equipment forensics are transferred to industry for production.

Offices that conduct this work:

- NA-22: Office of Nonproliferation Research and Development
- NA-24: Office of Nonproliferation and International Security
- NA-25: Office of International Material Protection & Cooperation

NNSA Office of Defense Nuclear Nonproliferation

NA-20 Office of Defense Nuclear Nonproliferation
November 4, 2005

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For a more detailed NA-20 Organizational Chart, please go to:

www.nnsa.doe.gov/na-20

Strengthens International Nonproliferation System and Emergency Management Capabilities

DNN provides unique policy and technical input to support U.S. nonproliferation initiatives and agreements and counter proliferation. DNN develops technical toolkits and methods for verifying international agreements and declarations.

DNN denies terrorists and countries of concern the acquisition of weapons of mass destruction by strengthening treaties and international institutions, such as the NPT, Additional Protocol, IAEA and Nuclear Suppliers Group.

DNN works with international partners to strengthen their export control and safeguards systems and leads Department of Energy efforts to bring together foreign experts to study security issues affecting their regions.

In addition, DNN assists nations and multilateral organizations in the development of emergency management programs and infrastructure to reduce the risk of nuclear and radiological events and mitigate the consequences of such an event. Armenia, China, Russia, Japan, South Korea, France, Norway, Argentina and Brazil work bilaterally with DNN to develop emergency infrastructure, training, exercises and procedures. The International Atomic Energy Agency, Nuclear Energy Agency and the European Union work with DNN to ensure standardized programs worldwide and develop response programs to handle nuclear emergencies.

DNN-sponsored emergency management training course for Russian nuclear facility managers in refurbished Moscow training center.

Centrifuge casings being prepared for removal from Libya.

IAEA Inspectors verify containers of HEU.

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Redirects Nuclear Expertise

DNN helps reorient the former Soviet Union's (FSU) nuclear weapons production complex toward commercial, non-military applications by reducing the FSU's weapons production infrastructure and redirecting its former nuclear scientists, engineers and technicians to non-weapons activities. DNN has already engaged more than 16,000 of these specialists, and is working with the State Department on redirecting specialists in Libya and Iraq.

DNN helped the Russian Federation to close its Avangard nuclear weapons production facility and is working with the Russian Federation to establish alternative industries in Seversk and Zheleznogorsk – facilitating the shutdown of plutonium production reactors in those cities.

Robotic landmine detection is just one example of the commercialization successes developed through redirecting nuclear expertise.

DNN secures non-weapons-related work for former Soviet weapons of mass destruction specialists.

Libya's Tajura Research Reactor will be involved in several scientist engagement activities conducted by DNN.

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NNSA Nonproliferation Programs

NA-21

Office of Global Threat Reduction

Reduced Enrichment for Research and Test Reactors

Converts U.S.- and Russian-origin research reactors from the use of HEU to the use of LEU fuels and targets, and develops new, high-density, LEU fuel types that facilitate the conversion of research reactors.

Foreign Research Reactor Spent Nuclear Fuel Acceptance and Russian Research Reactor Fuel Return

FRRSNF repatriates U.S. origin fuel. RRRFR repatriates Russian origin fuel from 17 countires using Soviet-supplied research reactors. Together, these programs encourage and support the reduction and eventual elimination of high-enriched uranium (HEU) in civil commerce.

BN-350

Enhances the security of weapons-grade plutonium in Kazakhstan by securing the spent fuel assemblies.

U.S. Radiological Threat Reduction Program (USRTR)

Identifies, recovers, and stores – on an interim basis – domestic radioactive sealed sources that pose a threat to the United States.

International Radiological Threat Reduction Program (IRTR)

Reduces the international threat posed by radioactive materials by locating, identifying, recovering, and consolidating dangerous radioactive materials outside the United States that could be used in a radiological dispersal device (RDD) or "dirty bomb."

Global Research Reactor Security Initiative (GRRSI)

Supports the Secretary of Energy's new global initiative to improve the security of at-risk nuclear and radiological materials, targeting material at nuclear research reactors and other such facilities.

NA-22

Office of Nonproliferation Research and Development

Proliferation Detection

Works with the National Laboratories, universities and commercial partners to develop advanced remote sensing and ground-based technologies to address problems related to detection, location, and analysis of foreign nuclear weapons programs, and the diversion of special nuclear materials.

Nuclear Explosion Monitoring

Conducts research and development leading to improved sensors to meet stringent detection thresholds, supports operational treaty monitoring through improved space sensors, and produces and updates regional geological datasets to enable operation of the nation's ground-based treaty monitoring networks.

NA-23

Office of Nuclear Risk Reduction

Elimination of Weapons-Grade Plutonium Production

Works to end the production of weapons-grade plutonium at the three remaining Russian production reactors by providing replacement fossil fuel energy. The reactors will be permanently shut down once the fossil fuel generated replacement power is in operation.

International Emergency Management and Cooperation

Collaborates with foreign countries and international organizations to develop and strengthen emergency management and response programs to handle nuclear and radiological events.

NA-24

Office of Nonproliferation and International Security

Nonproliferation and International Security

Advances U.S. national security by denying terrorists weapons of mass destruction, ensuring compliance with nonproliferation and arms reduction undertakings, countering illicit trade, strengthening treaties and other institutional barriers to proliferation, and promoting cooperation in regions of concern through policy initiatives.

Global Security Engagement and Cooperation

Engages international partners to promote compliance with safeguards and export control obligations, transition WMD expertise and infrastructure to peaceful commerce, and strengthen security in regions of proliferation concern.

Dismantlement and Transparency

Negotiates, implements and strengthens U.S. nonproliferation and arms control treaties and agreements by promoting transparent WMD reductions, developing associated transparency-monitoring tools and ensuring effective verification options, and developing associated transparency-monitoring tools.

Nonproliferation Regimes and Agreements

Prevents the proliferation of WMD and strengthens the nonproliferation regime by providing policy and technical support to multilateral, bilateral and international nonproliferation institutions and agreements, such as the International Atomic Energy Agency (IAEA) and the Nuclear Suppliers Group (NSG).

NA-25

Office of International Material Protection and Cooperation

Weapons Material Protection

Provides Nuclear Material Protection, Control and Accounting (MPC&A) upgrades at Russian Navy and Strategic Rocket Forces' nuclear warhead sites, Navy HEU fuel storage facilities, and shipyards.

Nuclear Warhead Protection

Secures nuclear material within Russia's Federal Atomic Energy Agency (Rosatom) weapons complex and at nuclear sites that store and process approximately 500 metric tons of weapons-usable material in Russia.

National Infrastructure and Sustainability

Promotes security upgrades in partner countries by improving their transportation security, training, and equipment for protective forces and monitoring operations. Develops national regulations, inspection, and maintenance infrastructure.

Material Consolidation and Civilian Sites

Provides MPC&A upgrades at Russian civilian nuclear sites that store and process approximately 40 MT of HEU. Converts excess weapons-usable HEU to non-weapons usable LEU and consolidates excess weapons-usable material into fewer, more secure locations.

Second Line of Defense

Deploys radiation detection monitors at strategic transit and border crossings as well as at airports and seaports to provide partner countries with the technical means to detect, deter and interdict illicit trafficking in nuclear and other radioactive materials. One high-visibility subset of this program is the Megaports Initiative, which Equips strategic seaports in foreign countries with radiation detection equipment and trains foreign law enforcement officials in support of the Department of Homeland Security's Container Security Initiative.

NA-26

Office of Fissile Materials Disposition

Plutonium Disposition

Collaborates in the elimination 68 metric tons of surplus weapons-grade plutonium (34 metric tons by Russia and 34 metric tons by the United States).

HEU Disposition

Down blends surplus U.S. HEU into non-weapons usable material for use as commercial nuclear power reactor fuel.

The greatest threat before humanity today is the possibility of secret and sudden attack with chemical or biological or radiological or nuclear weapons.

- President George W. Bush
Remarks at the National Defense University, February 11, 2005

Our defense against nuclear terrorism depends on keeping fissionable materials out of the hands of terrorists. No materials, no bomb – it's that simple.

- Secretary of Energy Samuel Bodman
Remarks to the Nuclear Threat Initiative Board, April 4, 2005

Today, the threat of nuclear terrorism is in the center of the U.S. and international security agenda. We can all take pride in the important work and steps taken to address nuclear terrorism since September 11th; but far more remains to be done to keep nuclear and radiological weapons out of the hands of terrorists and states that sponsor them.

- NNSA Administrator Linton Brooks
Remarks to the IAEA International Conference on Nuclear Security, March 16, 2005

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